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Newton's Coulomb Laws

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I. Introduction

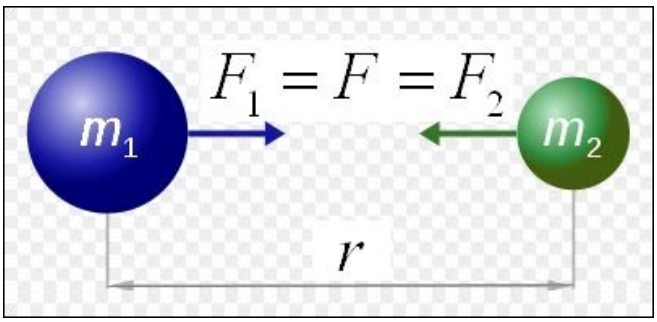
The gravitational and electrostatic fields are canonical potential fields and, accordingly, have many strictly mathematically proved identical solutions[1]. But because of the huge difference of forces, or rather, the ratios of gravitational and electric forces used for physical theories, the solutions are different[2]. And when they are trying to build a Unified Field Theory, they are trying, in principle, to combine the almost incompatible - from two magnificent buildings to build a new, whole. But the transitions do not match, and sometimes the floors. So, in practice, this Single Construction has been reduced to over-tightening the rope. And it began this pulling, one might say, with Heviside's Electromagnetic Theory of Gravity. But then they dragged the rope in the direction of Einstein's Theory of Relativity. And then, adding quantum theory to electrodynamics, they began to try to incorporate the Theory of Relativity into Quantum Electrodynamics.

But in the foundations of basic physical models, there are many assumptions that are not rarely erroneous[3]. At the beginning of the last century, at the dawn of building the Theory of Relativity and Quantum Theory, the basic models were actively discussed, but then were canonized. And their further development was reduced only to more complex calculations, which, taking into account the assumptions, led to the fragmentation of all physics, and in theoretical physics to singularities, wormholes and particles of God. The fact is that the Unified Field Theory has a few self-consistent solutions only in the ten-dimensional space, whereas for the convolution and our geometric three-dimensional space, we have not yet found the fourth dimension. Therefore, cumbersome but illiterate experiments are being made and speculate on their results.

Attempts to eliminate internal contradictions in physics, I began with an analysis of the intersections of the phenomenologies of dispersed branches of physics, describing, in principle, the same, or similar phenomena. But after correcting and generalizing some phenomenologies[4-11], it came to the conclusion that Quantum Mechanics is built on a special case - based on primitive solutions of the Schrödinger equation, which, in principle, are not elementary for atoms more complicated than hydrogen[12]. And Einstein's formula: "Some equations of the classical mechanic allow rewriting in the quantum-mechanical form" showed the need to return to the basic classical models. In this regard, the gigantic distinction between gravitational and electric forces is an excellent tool for analyzing various sides, in principle, strictly mathematically similar phenomena.

II. Gravity-Charge Analogy and Potential Waves

In the simplest geometric case (and in vacuum), the force of interaction between the masses $m_{1,2}$(Fig. 1) is described by the universal gravitation law (1)



Puc.1.

$$F = G \cdot \frac{m_1 m_2}{r^2} \quad , \qquad (1)$$

where $G = k^m$ = 6,67408·10−11 m ³ / (kg · s²) =6,67408·10−8 cm³ g⁻¹s⁻² - gravity constant (an inclination constant, according to Newton).

The Coulomb's law has a similar form, describing the force of interaction between charges $q_{1,2}$

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$$F = k^q \cdot \frac{q_1 q_2}{r^2}, \text{где в СИ } k^q = \frac{1}{4\pi\varepsilon_0}, \quad (2)$$

where $\varepsilon_0 \cong 8{,}8541878176 \cdot 10^{-12}\ F \cdot m^{-1}\ \left(C\ /\ \left(V \cdot m\right)\right)$- vacuum permittivity.

Proportionality coefficients in both laws are scaling ratios of different forces - reductions of both forces to usual to us to gravity force.

Usually, the analogy of these laws is associated only with their similar spatial distribution, with a quadratic decrease in the "density of static force" in both laws, corresponding to an increase in the surface of a sphere in three-dimensional space as its radius increases. The giant, by 42 orders of magnitude, the difference of these forces in absolute value, and the existence of two (accessible to measurements) charge marks led not only to different methods of measuring them, but also to theoretical isolation. Although the type of law itself indicates that they describe the power of the DIRECT (non-cross) interaction between EQUIVALENT particle measures μ.

$$F = k_\mu \cdot \frac{\mu_1 \mu_2}{r^2} = k_\mu \cdot F_\mu = k_\mu \cdot a_{\mu_1} \cdot \mu_2 \quad (3)$$

where k_μ - a scaling ratio in force size, usual for us (now newton).

At the same time for all similar measures around a particle there is a field of their forces of direct interaction which can be measured by a trial particle with a unit measure and which can compare the potential field determined by integration of force from infinity to the coordinate particle r set relatively

$$\varphi_\mu = k_\mu \frac{\mu}{r}, \quad (4)$$

And on the example of Newton's laws it is easy to see that there is a number of the general, the potential fields of the patterns which are not considered determined by existence neither for the charging field, nor for gravitational (for various reasons, but first of all, for the reasons determined by the different scale of forces).

And so, Newton's first law without "noise".

Inertia (as believed, solely for the masses).

Newton's first law postulates the existence of inertial reference systems. Therefore, it is also known as the law of inertia. Inertia (it is inertia) is the property of the body to maintain the speed of its movement unchanged in magnitude and direction when no forces act, and also the property of the body to resist a change in its speed. To change the speed of the body, it is necessary to apply some force, and the result of the action of the same force on different bodies will be different: the bodies have different inertia (inertness), the magnitude of which is characterized by their mass.

Or, modern wording

There are such reference systems, called inertial, with respect to which the material points, when no forces act on them (or mutually balanced forces act), are in a state of rest or uniform rectilinear motion.

And the second Newton's laws (also believe only for masses)

The second Newton's laws - the differential law of the movement describing interrelation between force applied to a material point and the acceleration of this point which is turning out from it. Actually, the second Newton's laws enters the weight as a measure of manifestation of inertness of a material point in the chosen inertial frame of reference (IFR).

The mass of a material point in this case is assumed to be constant in time and independent of any features of its movement and interaction with other bodies.

Or

In the inertial frame of reference, the acceleration that a material point with a constant mass receives is directly proportional to the resultant of all forces applied to it and inversely proportional to its mass.

In these first two laws of Newton, inertia is presented as a given, without any attempt to describe its nature. But having said "A" that inertia is a manifestation of external forces, they somehow did not dare to pronounce "B", which follows from the third law and the complementary concept of the first two. They did not dare because the subconsciously considered the field to be unreal, as if arising when a test particle was introduced into it.

Without going into casuistry of the type, whether there is a mountain, if a person has not "stepped in" on it, we simply accept as a given that the force of the particle's action (through the field) is equal to the force of its own field's opposition to it. Even the absence of the "Mountain" in the way of the waves excited by us in the medium does not cancel the necessity of applying force to the wave generator and the transfer of energy (waves) by this generator.

Only, at the same time, you should try not to allow twice taking into account the same impact - a member of the equation, as was often the case, for example, when calculating the potential Schottky barrier on the border of two media or in the Ioffe thermoelectric

model, accounting for twice the same heat flux in thermal conductivity and in a change in entropy.

The denial of the materiality of a field is based on the denial of the Theory of Ether. But the recognition of the materiality of the field itself denies the primeval Ether - there is simply no "empty" vacuum not filled with the gravitational potential, but simply the presence or absence of particles in it. Moreover, the denial of the materiality of a field is simply a TABU for a deeper study of Nature, a ban on the existence, in particular, of the substructure of the field. Such a "prohibition" is akin to a ban on the existence of irrational numbers, without which, as it has been strictly mathematically proved, the number axis is not complete.

Then it is easy to show that when the Einstein finiteness is taken into account, the speed of transmission of the inertia effect is directly related to the particle field.

And so, in these first Newton laws, inertia is simply postulated as a reality, but without any attempt to describe its nature. Whereas it is not difficult to demonstrate how this property of a particle is directly related to the field of a particle.

If we construct equidistant equipotentials (Fig. 2, left), then when a particle moves at a constant speed, the equipotentials of its field do not distort (Fig. 2, right) (at least, such distortion has not yet been registered).

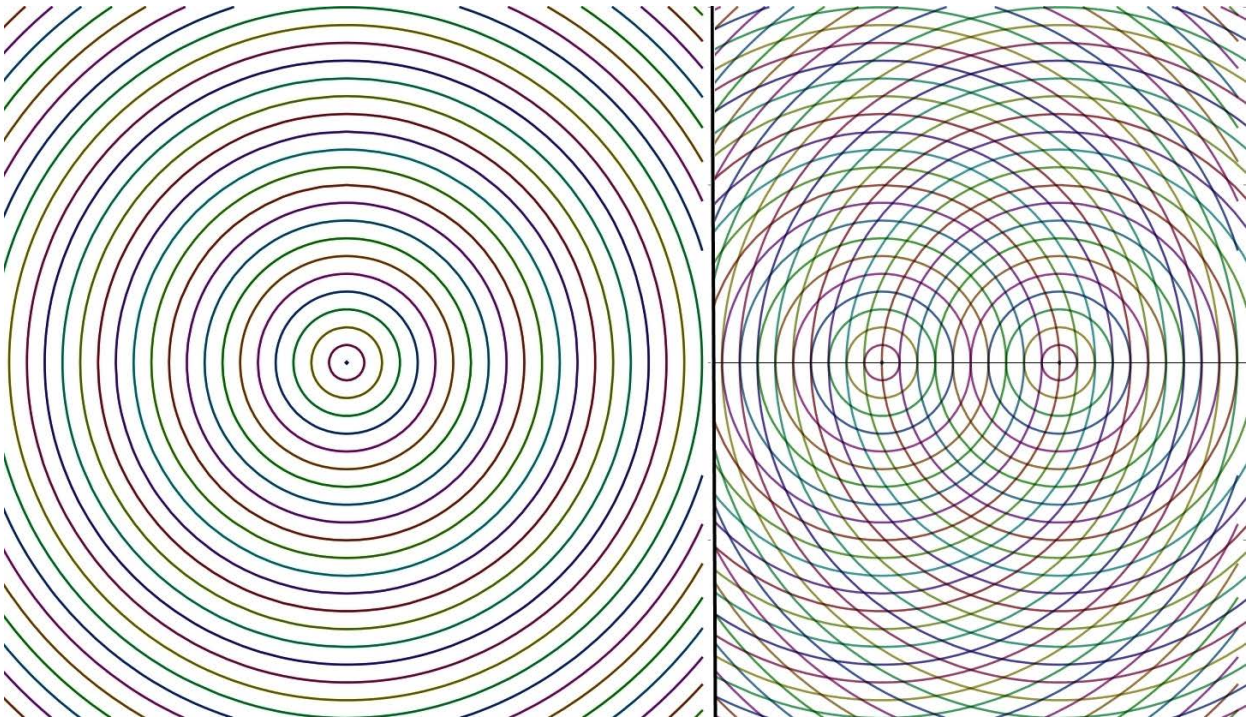

Fig. 2: Instant picture of the original equipotentials (left) and the imposition on them horizontally shifted to the right by ten distances between the equipotentials (right)

A more detailed transformation of equipotentials when a particle moves at low speeds is shown in Fig. 3 (the pictures depend on the angle of view on the drawing plane).

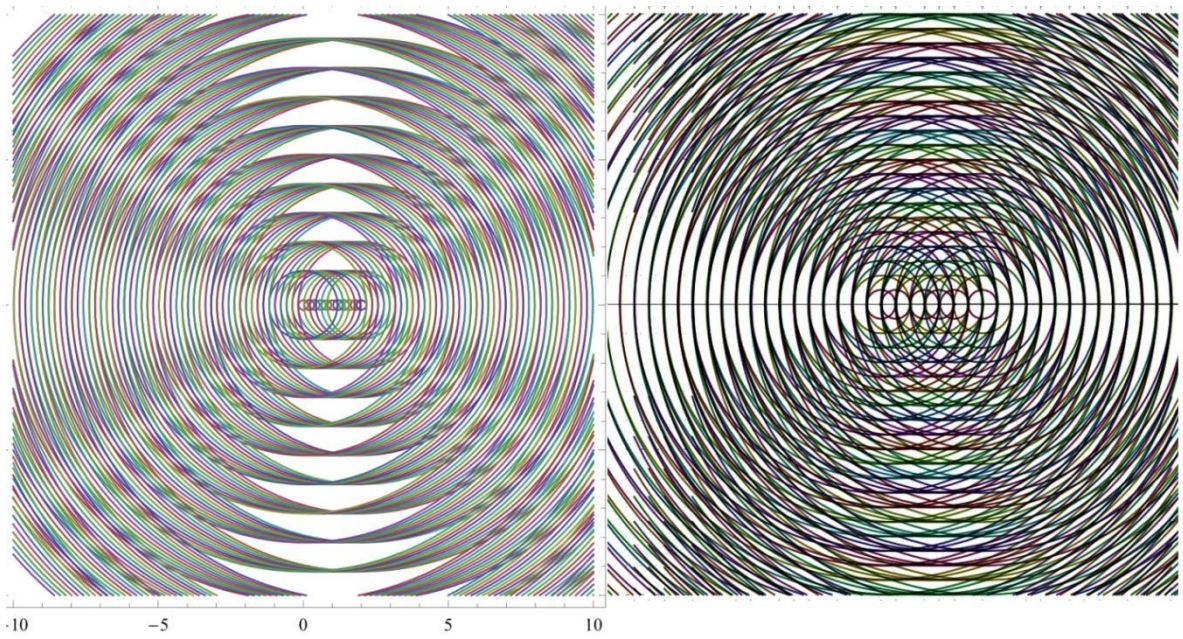

Fig. 3: Instant picture of the original equipotentials and the equipotentials horizontally shifted to the right superimposed on them: on the fraction of the step between the equipotentials (on the left) and the total steps (on the right)

On the other hand, when a particle moves with acceleration, on the contrary, there is no reason to assume that the change in the entire (to infinity) stationary field occurs instantaneously. Taking into account the finiteness of the transmission rate of the interaction of a particle with its own field gives a picture of the displacement of equipotentials, shown in Fig. 4, where it can be seen that after a fixed time interval, the further the equipotential is located from the particle, the less it is shifted.

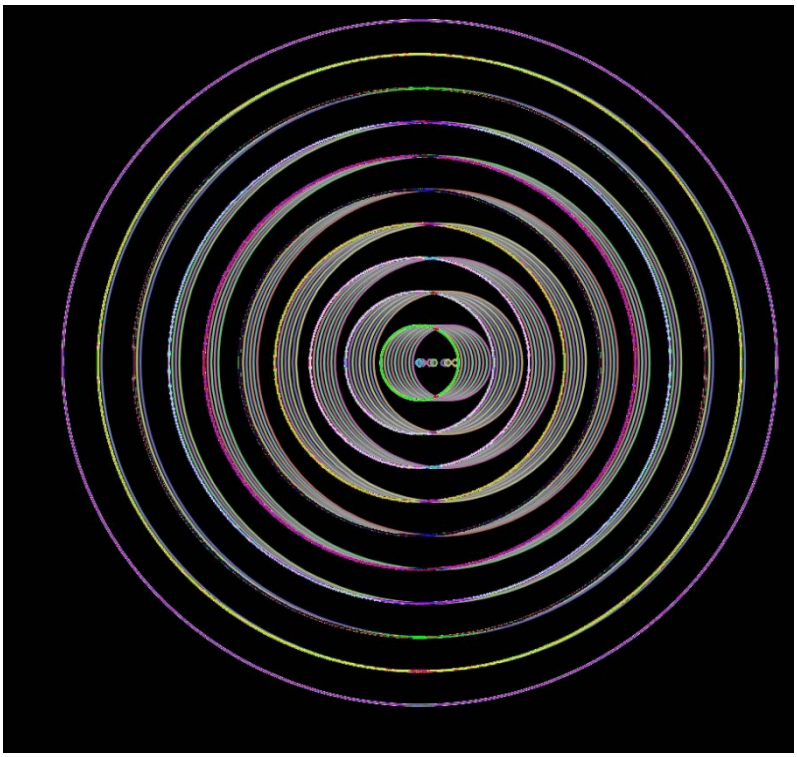

Fig. 4: The displacement of equipotentials with a horizontal displacement of the center of the particle to the right by one step, taking into account the delay time, the corresponding transmission of the interaction with the finite velocity through the time interval corresponding to the passage of ten steps

Assuming the charge and coefficient of proportionality equal to one, it is possible to calculate the spatial distribution of the potential in relative units when the particle is displaced by two steps (Fig. 5):
at stationary displacement without lag time

$$\frac{1}{r-2}, \quad \frac{1}{r+2} \tag{5}$$

taking into account the delay time shown in Fig.4

with impulse bias

$$\frac{1}{r-2\left(1-\frac{r}{10}\right)}, \quad \frac{1}{r+2\left(1-\frac{r}{10}\right)} \tag{6}$$

and with its harmonic oscillation

$$\frac{1}{r+2\cos\left(2\pi\frac{r}{10}\right)} \tag{7}$$

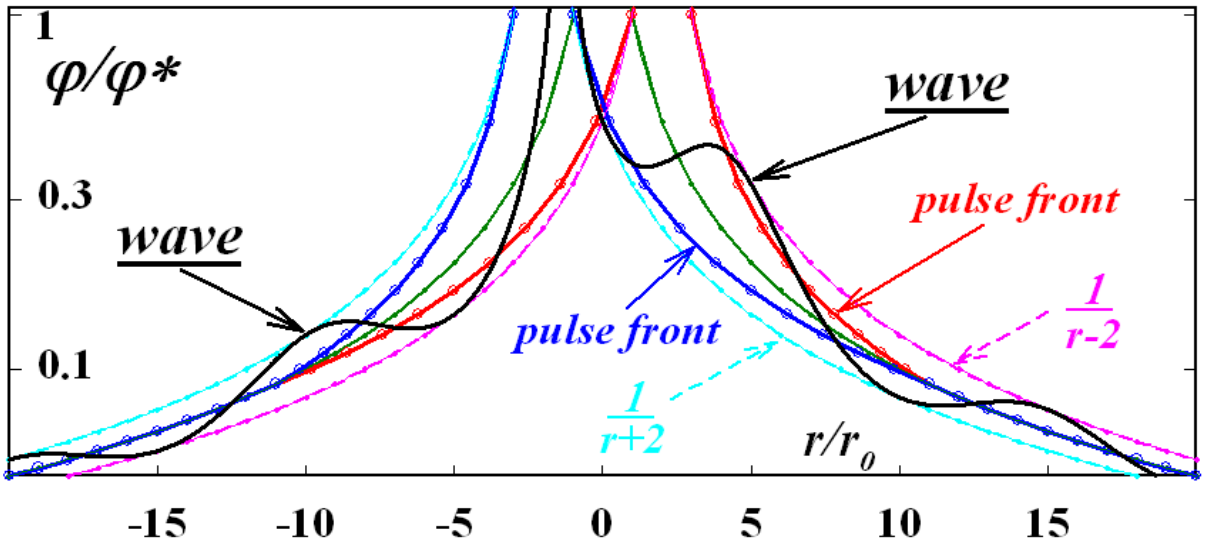

Fig. 5: The change in the spatial distribution of the potential during displacement / oscillation of a particle by two steps between equipotentials

The waves shown in Fig. 5 are potential and transverse with respect to their direction of propagation and amplitude of the potential oscillation. But in relation to force, they are longitudinal and not alternating, as are usual for us, transverse electromagnetic waves, the links with which we touch in the second paragraph. These potential waves, in fact, are similar to potential waves on the surface of the water, which, taking into account the principle of logarithmic relativity [13], will make it possible to look into the substructure of the field in the third paragraph.
So.

Summarizing the first law of Newton, one can say: if the potential field of a particle (even the mass, even the charge) is not distorted, then it moves uniformly at any speed.

Summarizing Newton's second law, we can say: if a particle's own field is distorted, then it (at least mass, even charge) gets acceleration proportional to the applied force and inversely proportional to the local measure of the particle (mass or charge).

And finally, the obtained longitudinal waves are for vacuum.

And for a medium, similar longitudinal Coulomb waves, in principle, have long been investigated — in plasma, in the form of longitudinal waves, fluctuations in the concentration of free electrons, and in polar crystals in the form of longitudinal polaritons — displacements of charges localized on ions. And these effects can be used to register longitudinal Coulomb waves in a vacuum, along with the charge of the nano-layer inside the sphere described in the article "Electrostatic propulsion 2" [14].

Recently identified with the help of an interferometer as gravitational waves specifically for vacuum, it is also possible to easily associate these longitudinal waves. But it requires the correct formulation of the experiment. Orientation of one axis of the interferometer vertically, even with a small length of it, will give a multiple increase in sensitivity. And most importantly, increasing the accuracy of interpretation without any convolutions of space-time[15].

III. Transverse Gravitational and Charge Effects

The modern, in my opinion, one-sided interpretation of the Theory of Relativity has led to some opposition of gravitational and charge effects. This was the reason for ignoring the Heaviside Electromagnetic Gravitational Theory. But I only remind you of this

mathematical attempt of the Heaviside Single Description, but I will not engage in the analysis of this mathematical mind game, since physics is either built on invariants of reality, or they are isolated from reality. A charge and mass are independent characteristics of matter, and not different in indirect evidence. Here is an indirect, in my opinion, erroneously attributed difference between charge and mass, which modern theories give out as a matter of principle, and then they are fighting over its resolution, and I will try to eliminate it.

A fundamental difference is that the conservation law only works for charge. And for the masses of his allegedly, on the basis of the law of conservation of energy, abolished the Theory of Relativity. But the law of conservation of mass does not contradict the law of conservation of energy, if the energy associated with the Einstein additive to the mass at a speed close to the speed of light is associated with the same compression / discharge equipotentials shown in the first paragraph when the particle is accelerated. When a particle is accelerated, this compression directly follows, as was shown above, from the definition of inertia as an external influence on a particle of its own field. The compression of the medium and the excitation of waves in it when approaching the maximum transmission speed of exposure in the medium are also well known for environments with acoustic waves (sound barrier) and for the movement of ultrafast particles in the medium (the Vavilov-Cherenkov effect). So, the noted difference between gravitational effects and charge effects is not fundamental, but their description is repelled by different experiments and experimental conditions due to the gigantic quantitative difference of gravitational and Coulomb forces. Considering this gigantic, but quantitative difference, you need to build for your transverse effects your “Planck function” (which eliminated both your “ultraviolet” and your “infrared” catastrophes).

And so, in physics and in engineering, it has long been the norm to use transverse electromagnetic waves, but when they are emitted, even from wires, on long waves, even from dipoles, in the form of light, far exceeding their electrostatic fields are fully compensated (at sufficient distances). On the other hand, these transverse electric fields are generated by a giant Coulomb and, although weaker than it, by many orders of magnitude, but not by 42 orders of magnitude, like gravitational. And in order to observe gravitational transverse fields, at least in similar electromagnetic conditions, for experiments we would need a dipole of neutral particles and antiparticles, compressed by an additional force, which compensates for their repulsion. In the absence of this, two approaches to the description of transverse effects arose.

Considering the real experimental accessibility, it is required to analyze the differences of gravitational and charge effects. And Einstein's statement also led to the consideration of a concrete framework with a current from one electron: "Some equations of classical mechanics can be rewritten in a canting-mechanical form." And when the analysis of C & BN [10] led to the need to revise the atomic orbitals [11], and as a result, the revision of the Schrödinger equation [12], we had to return to the revision of the classical equations that Schrödinger wrote in an operator form (not without the help of Heaviside, who introduced the operators and vector analysis).

So. The standard charge approach allows us to estimate the transverse (magnetic) force acting on a single electron in a circular orbit. For a sufficiently accurate approximation, this force can be calculated as a force acting on the side of a square frame describing a circular orbit (Fig. 6).

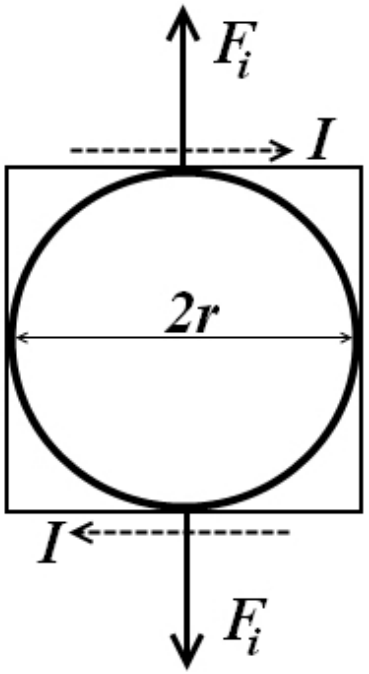

Fig. 6: The circular orbit of an electron and its equivalent frame with current

To do this, we use the formula for the force (called a magnetic) F_I pushing the wire at the counter currents in them. If the current is formed by one electron, then the formula for the current of one electron F_i takes the following form:

$$F_I = \frac{\mu_0}{4\pi}\cdot\frac{I^2}{d}l \to F_i = \frac{\mu_0}{4\pi}\cdot\frac{i^2}{2r}2r = \frac{\mu_0}{4\pi}\cdot\left(\frac{e}{T}\right)^2 = \frac{\mu_0}{4\pi}\cdot\left(\frac{e}{2\pi r/v}\right)^2$$

$$\mu_0\varepsilon_0 = c^{-2} \to F_i = \frac{1}{4\pi\varepsilon_0 c^2}\cdot\left(\frac{e}{2\pi r/v}\right)^2 = \frac{1}{4\pi\varepsilon_0}\cdot\left(\frac{v}{2\pi c}\right)^2\cdot\frac{e^2}{r^2} \quad (7)$$

Strictly integrating projections from forces directed along arbitrary chords gives, of course, only an insignificant numerical correction. Therefore, a qualitative relationship between the electrostatic F_C^e and current F_i force can be obtained if a positive charge is placed in the center of the orbit, which is equal in magnitude to the electron:

$$F_i = \left(\frac{v}{2\pi c}\right)^2\cdot\left(\frac{1}{4\pi\varepsilon_0}\cdot\frac{e^2}{r^2}\right) = \left(\frac{v}{2\pi c}\right)^2\cdot F_C^e << F_C^e \quad (8)$$

It should be immediately noted that the original formula for current (magnetic) force was obtained for macroscopic objects. Therefore, it strictly describes the ratio of magnetic and electrostatic forces for macroscopics. At the same time, with the drift (current) velocities of electrons in the metal, fractions of cm / sec are weaker than the Coulomb forces of about 23 orders of magnitude, but at the same time, almost 20 orders of magnitude greater than the gravitational ones. Therefore, we can with a small magnet resist its gravitational attraction by the whole Earth. But this does not mean that the original formula works strictly on a microscopic scale. However, it is also used on a microscopic scale in electrodynamics. Whereas, as can be seen from formula 8, for any speed of motion of a charged particle in orbit, the centrifugal magnetic force will be less than the centripetal Coulomb. So, in addition to this force, it is necessary to take into account the presence on the micro scale of an additional force that repels the electron from the proton (otherwise the electron will fall on the nucleus).

This repulsive force was tied up with energy quanta, obtained from the Schrödinger equation, tied roughly, on the basis of a primitive model of the hydrogen atom. I tried to connect this centrosymmetric force with the empirical dependence of energy on distance $1/r^5$ [12]. And it is this additional force that determines the average minimum potential in a sphere of a certain radius, and the symmetry of the distribution of local minima over the sphere is determined by the number of external electrons. The dependence of the potential energy $1/r^5$, in principle, does not contradict the three-dimensionality of the geometric space, but allows for additional independent measurements in the space of subparticles that form the field.

The standard gravitational approach, of course, also developed for macroscopic conditions, but different, makes it possible, on the basis of formula 3, to calculate the centrifugal force of not only the mass, but also the charge of an electron $F^e_{\text{centrifugal}}$. And this centrifugal force can also be compared, when a positron is placed in the center of the orbit, with a centripetal Coulomb force F_C^e.

$$F^e_{\text{centrifugal}} = k^e\cdot a^e_{\text{centrifugal}}\cdot e = \frac{1}{4\pi\varepsilon_0}\cdot\frac{v^2}{r}\cdot e \rightleftharpoons \frac{1}{4\pi\varepsilon_0}\cdot\frac{e}{r^2}\cdot e = F_C^e \quad (9)$$

Formally, you can get your own "cosmic velocity" of an electron, rotating equivalent to it in the absolute value of a positive charge, say, around the positron:

$$v_1 = \sqrt{\frac{1}{4\pi\varepsilon_0}\cdot\frac{e}{r}}, \quad v_2 = \sqrt{2}v_1, \quad (10)$$

As can be seen from the formula 10, these speeds are higher, the smaller! radius of the orbit. But these velocity formulas are obtained for “particles” with a very large mass difference (by several orders of magnitude). And for equal measures with radii less than critical r^*, the centripetal force exceeds the centrifugal. And, on the contrary, when the radius of the orbit is greater than the critical one, the centrifugal force exceeds the centripetal force (Fig. 7).

$$r^* = \frac{e}{v^2} \quad (11)$$

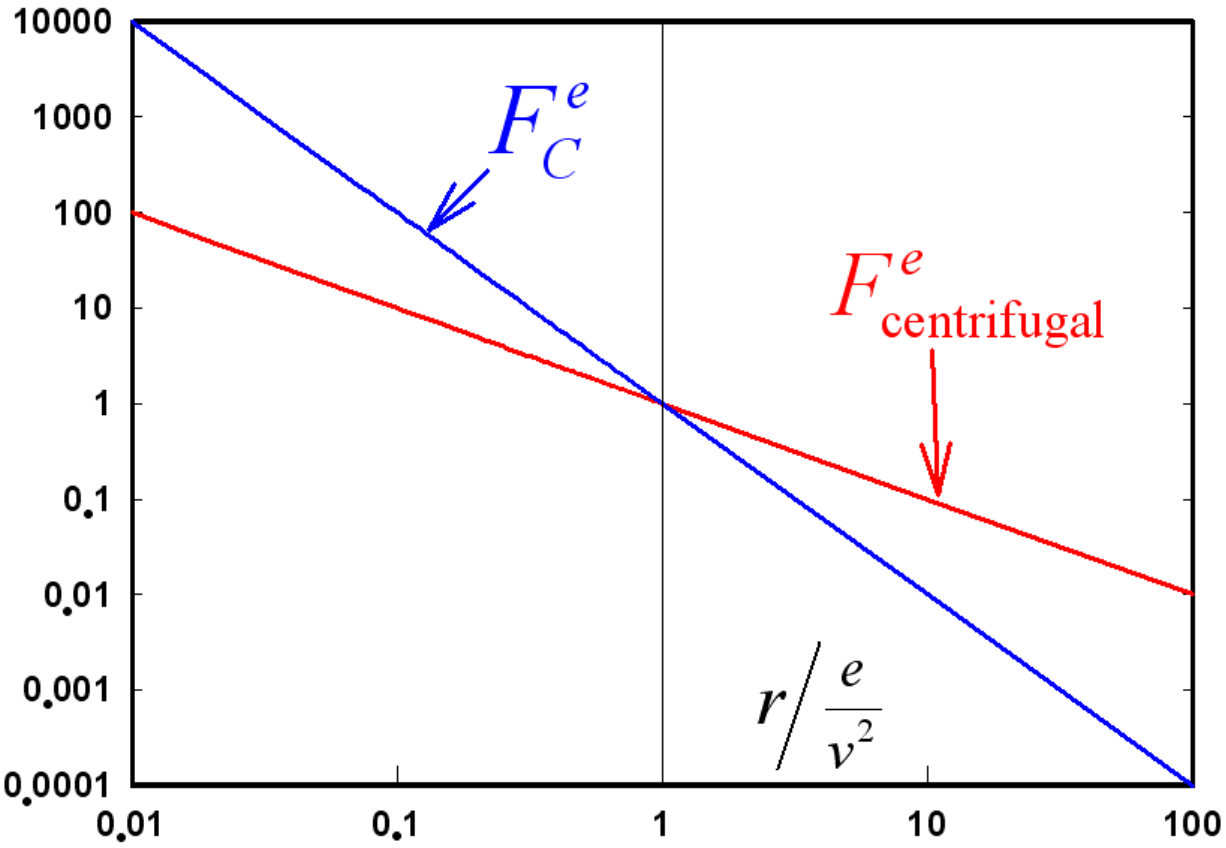

Fig. 7: Dependence of centrifugal and centripetal forces on the reduced radius

The presented elementary dependence of the critical radius is similar to the formula for the stability of a molecule or even a crystal, which, as is well known, falls apart at high speeds / temperatures. This indicates that the magnetic force (formula 8) at the microscopic level does not fully take into account centrifugal effects. Although, on the atomic scale, as noted above, the force inversely proportional to the first degree of the electron orbit radius is not enough for the stability of the electron orbit.

And, on the other hand, it is well known from the theory of gravity, for macroscopic mass and radius, that for equal small masses, their attraction is not enough to counteract this centrifugal force. The rotation of any ball around the equivalent will stretch the spring even at low speeds. Since if there are approximately flying stars that do not fly apart or rotate relative to each other, it would seem that it would be possible to assume that deviations about this formula for centrifugal force are possible only for very large masses. But integrating the centripetal force to infinity gives divergence for any masses. Therefore, to calculate the total potential of charges, we used the constraint at the level of 100 effective radii (Fig.8)

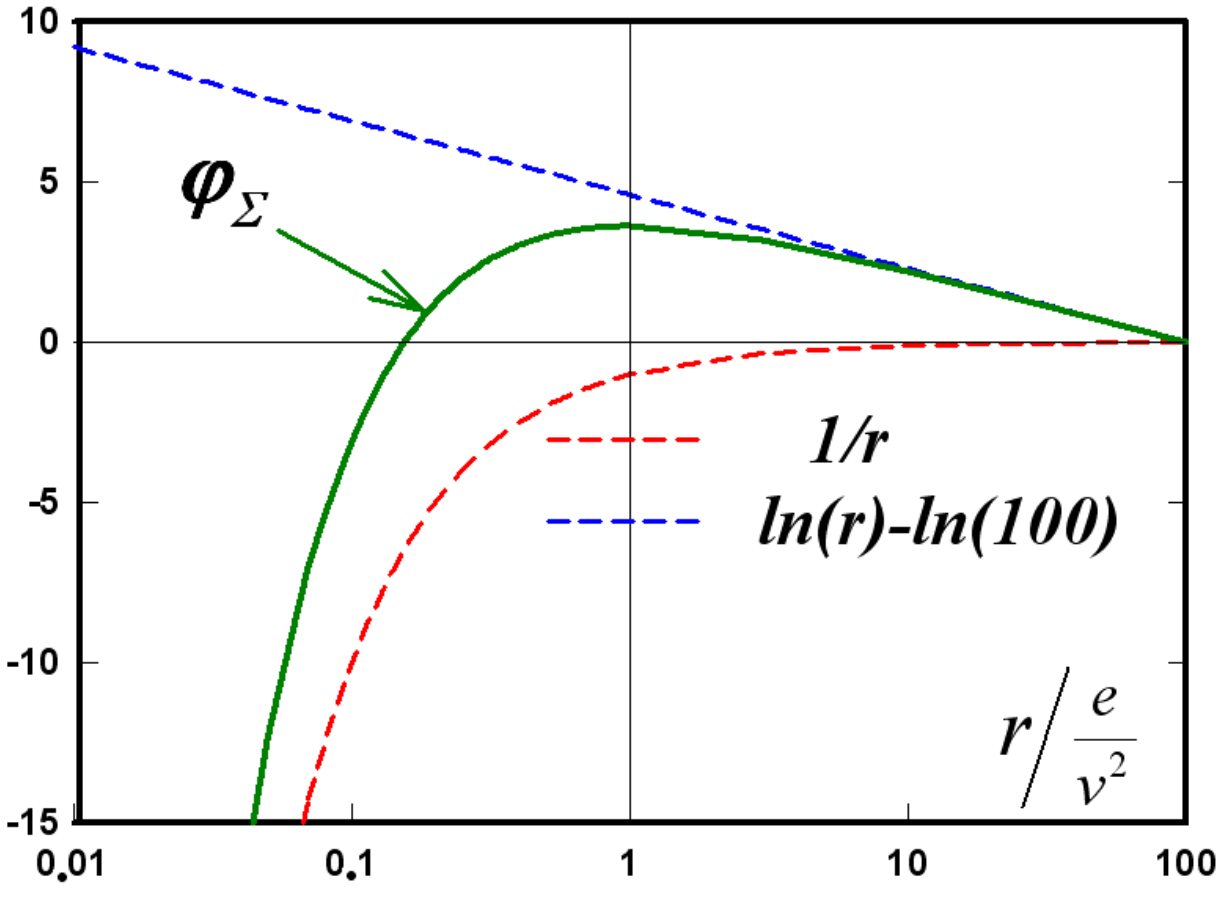

Fig. 8: Dependencies of centripetal, centrifugal and total potential on the reduced radius

The total potential presented in Fig. 8 for both masses and charges qualitatively demonstrates a point of unstable equilibrium with a distance between particles equal to the critical radius. But because of the potential used for the integration of a finite interval, this potential also contains the final support. The tendency of this support to infinity with increasing integration interval directly indicates that the centrifugal acceleration (formula 9) used is valid only where it is used: the satellite orbit radius does not exceed the Earth's radius much. And for the rotation of stars relative to each other, and for scattering of galaxies, especially, this formula is in principle not applicable. So no relativistic corrections will fix it, will not eliminate the divergence at infinity. And in general, not only for electrons in a crystal, but also for astronomical gravitational effects, it is necessary to take into account the potential formed by the environment (including an infinite medium). So it is likely that the stars, as well as the planets of our solar system, rotate in a gravitational potential well created by the space around us.

However, the influence of an unaccounted potential (and possibly an unaccounted particle measure) does not negate the fact that the gravitational formula contains an error, and the magnetic component confirms this additionally. In a more accurate formula, there must be a type factor $1\pm\frac{m}{M}$ that degenerates into a unit with a large difference in mass(measures) and a "magnetic" factor $\frac{v}{c}$.

But most importantly, the divergence is removed only for the force falling faster than the first degree

$$\int_x^\infty \frac{1}{x^{1+\Delta}}\,dx = \frac{1}{\Delta\cdot x^{\Delta}} \qquad (12)$$

So even a simple geometric mean centrifugal and magnetic force removes a number of contradictions both in the theory of gravity and in electrodynamics.

$$F_\perp^e = \frac{v}{2\pi c}\sqrt{F^e_{\text{centrifugal}}\cdot F_C^e} \qquad (13)$$

And so, the formulas for the transverse "centrifugal" forces used by charge and mass differ radically (functionally).But this does not mean the fundamental difference between the gravitational and charge fields. This functional difference simply reflects the fact that in both traditional approaches we take into

account only different parts / sides of the transverse effect. The principal difference is the scale difference between forces and distances, which can be seen from a comparison of these forces simply with the Coulomb one when placed in the center of the positron orbit. So the situation with the difference of gravitational and charge description of the centrifugal force is akin to resolved, for eliminating infrared and ultraviolet catastrophes, by Planck.

IV. Cross Effects

Phenomenological cross effects describe in a linear approximation a flux determined by a non-fundamental force indirect for a given flux. Thus, the temperature force or the electric heat flux in thermoelectric effects affects the electric current [6]. Similar considerations can be made for charged particles, which naturally have mass. And not only. So in a capacitor galvanometer electric, the recorded force accelerating mass of the movable plate of the capacitor is balanced by the force of elasticity of the spring. One can consider, without additional force, the total effect of the Coulomb force and gravity, say on the charged foil or currents in the atmosphere. The actual appearance of the charges themselves on the clouds is also determined by a similar cross-line effect, in this case, precisely in the flows of ion molecules in the atmosphere.

But some observable effects, and in a simple galvanic capacitor, when transverse, magnetic force works similarly to an electrostatic force, and when the light beam deflects when it passes near a massive star, we have a mass interaction with an electric field. Although, strictly speaking, the very holding on the particle and the mass and charge can also be considered as their interaction. Therefore, it is logical to assume that for different measures there is a cross-type force

$$F_{12} = k_{12} \cdot \frac{\mu_1 \mu_2}{r^2} \Leftrightarrow k_{qm} \cdot \frac{qm}{r^2} = F_{qm} \quad (14)$$

So a priori suppose that the cross coefficient is zero, there is no reason. And although, strictly speaking, there is also no reason, except for the three-dimensionality of geometric space, to assume that this force will be inversely proportional to the square of the distance, as in canonical laws. But the very presence of such an “unaccounted” force does not simply explain the possibility of a static attraction of a positron to a neutron or repulsion of an electron from it with the formation of a proton, but taking into account Newton's laws, it also allows to take into account the “unaccounted” dynamics under the influence of this force.

V. Substructure Fields

"Justification" of Coulomb's law by quantum electrodynamics using virtual photons (sometimes they are said to be bosons, but they all mean the same photons that are Bose particles) seems to me logically wrong, because and individual photons are the same waves, but not continuous - not coherent, like radio waves or laser radiation. And to use macroscopic wave trains to describe their internal structure and even for a static Coulomb field is a clear mistake.

When they talk about "discovery" (supposedly made by Einstein) that light consists of particles, they do not take into account that in the Einstein photoelectric effect particles are pieces (trains, quanta) of incoherent scattered light. And the particles from which the structure of the wave is built, even though the structure of the constant field has nothing to do with the trains, do not have electromagnetic quanta. The zugs themselves consist of these subparticles. But so far these are mythical (supposed) particles, the flow density of which is from a microparticle, due to the continuity of the total flow in a 3-dimensional space, and gives the laws of statics. But the flow is directly related to the departure (loss) of particles, which is not. So, if we discard the assumption of a solid, such as a crystalline substructure, we have rather a “gas” density distribution of these mythical particles “above the surface” of charge/mass. The characteristics of the medium of subparticles: pressure and density, are set by their own field acting on the subparticles, and the adiabatic index of the medium, which depends on the number of degrees of freedom of the subparticle, determines the limiting velocity of interaction in the medium.

This subfield and prevents them from scattering to infinity from the microparticles. And this is not a tautology, it is a manifestation of the principle of logarithmic relativity - some models, taking into account the scale factors work on different scales of the organization of matter. And the ancient Greeks, not knowing this formally, defined the atomic structure of matter correctly. And Lenin, saying that “an electron is also inexhaustible as an atom” also had in mind the previously known macroscopic “inexhaustibility” and the possibility of its large-scale translation to an “infinite” logarithmic zero. But the crisis of modern physics is evident in the fact that Lenin's formulation was understood literally and subparticles began to be sought in microparticles, while missing an important step - subparticles of the field. And they began to break down microparticles in the co-particles, and not the same light.

I personally was lucky to talk with Termen, who was able to translate the most abstract ideas into working devices, into the same termenvox. As he said, Einstein, when he came to him with a request to voice elementary geometric figures on his termenvox, tried not

to lose the thread linking his calculations with reality [14, 15, 16].

The modern theory tends to distance itself from reality, moving into fictitious and experimentally unconfirmed ten-dimensional spaces. And the tighter dimension of the subspace of the field is not so difficult to estimate, relying on Newton's Coulomb laws and on the understanding that a continuous field without subparticles is as leaky as the number axis without irrational numbers. Experiments to study the structure of fields or to create virtual particles by a field (as described, for example, in [17]) will allow physics to return to the area of basic research related to reality, and not to particles of God.

VI. Conclusion

True Science is built on invariants, numerical and functional. And, as was shown, reliably established invariants of a potential field: Newton's laws and Coulomb's Law, allow us to describe a number of modern scientific "anomalies."

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